Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

the hospital session and self-reported every 20 minutes during home treatment on a numerical scale from 0 to 10. The median score values were compared between hospital and home treatments in 7 different moments using the T-Student test considering significant differences for a *p-value* <0,05. The patients were evaluated every 6 months through clinical and dermoscopy evaluation.

Results: The lesions comprised 8 nodular BCC (mean diameter of 8,38mm) distributed in 6 females and 9 males patients. The median age was 58 years old. Six BCC were located on trunk, and 2 were located on upper limbs. According to histological analysis, the clearance at 30 days after PDT was 86,67%. The pain score was significantly lower for the PDT treatment performed at home (Table 1). All the patients completed 1 year of follow up and showed no recurrence.

Conclusion: Using a portable irradiation prototype delivering lower irradiance was possible to offer a less painful and more comfortable treatment. In this pilot study, our protocol presented promising results with 86.6% of clearance. A randomized clinical trial has been started (registration number: 32048720.8.0000.5434) to confirm these promising results and establishing this new protocol.

KEYWORDS: Nodular basal cell carcinoma, photodynamic therapy, home treatment

Table 1 - Mean pain scores at hosptial and at home sessions in 7 moments (minimun and maximun)

	1st measure	2nd measure	3th measure	4th measure	5th measure	6th measure	7th measure
mean pain at hospital	**2.75** (0-6)	**3.25** (0-6)	**3.25** (0-7)	**3.25** (0-7)	**3.25** (0-7)	**2.19** (0-5)	**2.5** (0-5)
mean pain at home	**1** (0-4)	**0.75** (0-4)	**0.75** (0-2)	**0.36** (0-2)	**0.37** (0-2)	**0.37** (0-1.5)	**0.37** (0-1.5)
*p value**	*0.075*	*0.008*	*0.005*	*0.002*	*0.002*	*0.002*	*0.002*

** T-Student test with significant differences for p<0.05*

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doi: 10.1016/j.pdpdt.2023.103449

LASU quarantine dye: Antimicrobial Phthalocyanine Activated by Indoor Light

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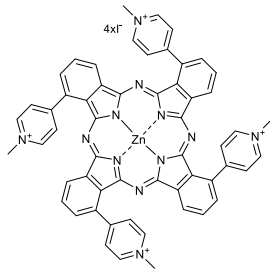
Novel safe and stable teracationic Zinc phthalocyanine is efficient against bacteria, fungi and viruses also under indoor light Recently a novel photosensitizer with outstanding properties, phthalocyanine LASU has being developed. The compound possesses unprecedented stability and antimicrobial activity. It can be activated by a weak indoor light of 270 lux and shows the activity against G+ and G- bacteria as well as fungi and viruses. Over 3 log inactivation of bacteria and fungi on the surface of a LASU-impregnated material can be achieved in $\frac{1}{2}$-1 h of illumination with a regular indoor and/or natural light. A cotton filter impregnated with 0.1 g/m^2 of LASU eradicates on its surface the coronavirus HCoV-229E by 3.5 log in 30 minutes under indoor/natural light of 500 lux.

The molecule is photostable and remains active for weeks with no significant bleaching. Another remarkable property is its ability to bind to cellulose support. It readily attaches to a fiber substrate through electrostatic interactions, moreover, the size of LASU ring matches the pitch of cellulose polymer, making the conjugate unusually strong. Hence the compound does not leech to water and is stable against temperature



and surfactants. The toxicology studies also reveals that substance is non-irritating for human skin, and is non-mutagenic, which makes it suitable for human-wearable items.

KEYWORDS: PACT, phthalocyanine, antimicrobial, antiviral, antifungal, photosensitizer

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doi: 10.1016/j.pdpdt.2023.103450

Nasal photodisinfection in an industrial workplace for COVID-19 suppression

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Antimicrobial photodynamic therapy (aPDT) [1] has been deployed in tens of thousands of patients in Canada for preoperative intranasal bacterial suppression to reduce the prevalence rate of surgical site infections [2]. This treatment has proven safe and effective, with infection rate reductions of 40-80% in tertiary care systems despite only requiring 4 minutes of therapy [2]. We previously demonstrated that aPDT eliminates the RNA signature of wild-type SARS-CoV-2 in vitro, with reduction of RT-qPCR threshold counts (ΔCt = 22) in a light-dose dependent manner (C = 320 μM, λ = 664 nm, F = 36 J/cm^2) [3]. Photodynamic targets were found to include the receptor binding domain, spike protein and nucleocapsid domain, consistent with a broad spectrum peroxidative effect on anionic moieties throughout the virion [3]. This work describes the benefits of using regular aPDT treatments in the industrial workplace for the purpose of employee COVID-19 prevention.

From July 2020 to August 2021, aPDT was deployed at a large Canadian food processing plant. Meat processing facilities face distinctive challenges in control of infectious diseases, including SARS-CoV-2. Factors that increase processing workers' risk for exposure to SARS-CoV-2 include close contact for 8-12 hour shifts, shared transportation, and congregate housing [4,5]. The presence of a slaughtering plant in a community is associated with a 51 to 75% increase in COVID-19 cases per thousand over the baseline community rate, and a 37 to 50% increase in death rate over the baseline community rate [5]. Methylene blue-mediated aPDT (Steriwave^{TM} Nasal Photodisinfection System, Ondine

Biomedical Inc., Vancouver, BC) was added to the standard infection control bundle at the plant, along with employee education. Treatments were administered free of charge to approximately 1,500 employees on a voluntary basis during paid work hours. Compliance levels of employees requesting aPDT were 85%. To determine intervention efficacy, the rate of qPCR-positive COVID-19 tests over the treatment time period was compared to the same rate in the surrounding province.
Results demonstrated a reduction of COVID-19 rate of over 3 times ($p<.0001$, Fisher's Exact Test) in the treated population compared to the untreated population, with the largest adverse event being mild (self-limiting) rhinorrhea in < 1% of cases. The plant continued production and distribution of products without disruption. Important outcomes from this quality improvement initiative included (a) aPDT proved to be a rapid, lightweight intervention that could be deployed at high compliance levels in a commercial high-throughput food processing operation, (b) significant impact (>3X reduction) on the COVID-19 rates was observed and (c) COVID-19-related comorbidities including acute and long-term illness, disability, and death were proportionately avoided.

KEYWORDS: Antimicrobial photodynamic therapy, SARS-CoV-2, food processing plant, COVID-19, supply chain

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doi: 10.1016/j.pdpdt.2023.103451

Can autofluorescence and fluorescence imaging be useful in fight with COVID-19 pandemia?

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The entire medical world gathers information related to the COVID-19 pandemic, including its spread analysis, disease characteristics, morbidity and mortality statistics, as well as factors limiting and promoting infection and severe course, and above all potential treatment options. Scientific research is being carried out on a large scale on methods of early detection of COVID-19 infection, including imaging methods such as computed tomography or ultrasound imaging. The importance of imaging methods is increasingly emphasized in the literature as sensitive and specific, often with greater clinical utility than mass-applied serological tests. Especially in large urban agglomerations such as Silesia, the wide availability of these imaging methods as screening methods in the clinical assessment of potentially infectious patients seems to be important. The literature on the COVID-19 epidemic emphasizes the significant role of integrated diagnostic methods including basic science as well as radiological and endoscopic imaging methods in the diagnosis of COVID-19 infection and its possible complications. The study presents potential possibilities of using the phenomena of autofuorescence and fluorescence in supporting the diagnosis of patients with suspected COVID-19 infection. The study presents preliminary results of case studies of patients suspected of being infected with COVID-19, and shows the multidimensional application of fluorescent phenomena in supporting diagnostics. One of the main tools used in the study is autofluorescent bronchoscopy as a method that, in synchronization with high resolution tomography analysis, significantly facilitates obtaining representative material for RT-PCR. The study also showed the potential for assessing fluorescent material under fluorescence microscopy, which can significantly facilitate diagnostics in the future and speed up existing screening tests to complement genetic diagnostics.

KEYWORDS: Autofluorescence imaging, Autofluorescence bronchoscopy, COVID-19, Pandemia

doi: 10.1016/j.pdpdt.2023.103452

Photochemical internalization (PCI) - an intracellular drug delivery technology for treatment of solid tumors

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Photochemical internalisation (PCI) is a novel technology for release of endocytosed macromolecules into the cytosol. The technology is based on the use of photosensitizers located in endocytic vesicles that upon activation by light induce rupture of the endocytic vesicles and thereby release of the macromolecules into the cytosol. PCI has been shown to enhance the biological activity of a large variety of macromolecules and other molecules that do not readily penetrate the plasma membrane, including type I ribosome-inactivating proteins (RIPs), gene-encoding plasmids, adenovirus, oligonucleotides and some chemotherapeutic agent, such as bleomycin. Novel recombinant protein toxins have been developed for activation by PCI. The PCI treatment has been found to induce vascular shutdown and strong inflammatory effects that may be utilized to stimulate anti-tumor immunity and cancer vaccination. An update on the development of the PCI technology towards preclinical evaluation and clinical implementation will be presented.

KEYWORDS: photochemical internalization, drug delivery, photodynamic

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